Bald Eagle

(*Haliaeetus leucocephalus*)

Status

Federal: Listed as Threatened. Proposed for delisting by the U.S. Fish and Wildlife Service July 4, 1999 (64 FR 128).

State: Listed as Endangered

Other: Fully Protected (California Fish and Game Code 3511)

Recovery Plan: *The Pacific Bald Eagle Recovery Plan* (U.S. Fish and Wildlife Service 1986). The states covered in this plan include Idaho, Nevada, California, Oregon, Washington, Montana, and Wyoming.

Placer Legacy Category: Class 1

Distribution

North America

Bald Eagle occurs throughout most of North America. The breeding range extends from the Aleutian Islands and Alaska in the north; east through Canada to Labrador; and south to Florida, Baja California, and other scattered locations in northern Mexico (U.S. Fish and Wildlife Service 1999; Buehler 2000). In the contiguous United States, the breeding distribution is concentrated in the Cascade Range of Washington, Oregon, and northern California; the Rocky Mountains; the Great Lakes region; Maine; the Atlantic coast; Florida; the Gulf Coast in Louisiana and Texas; and central Arizona (Buehler 2000). The species' winter range includes coastal Alaska and Canada, southern mainland Canada, and nearly the entire continental United States.

California

Bald Eagles breed or winter throughout California except in the desert areas (Zeiner et al. 1990). Most breeding activity occurs in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties (Zeiner et al. 1990). California's breeding population of Bald Eagles is resident year-round in most areas where the climate is relatively mild (Jurek 1988). Bald Eagles nest in only a few scattered locations south of the northern Sacramento Valley.

Placer County Phase I Planning Area

Historical

The California Natural Diversity Database (CNDDB) contains no records of breeding Bald Eagles in Placer County. Although Grinnell and Miller (1944) do not mention Bald Eagles breeding in Placer County, Detrich (1985) cited one and possibly two records prior to 1940 of Bald Eagles nesting near Lake Tahoe.

Current

There are currently no Bald Eagle pairs breeding in Placer County, although individuals are frequently observed during winter.

Population Status & Trends

North America

Since Bald Eagles were listed throughout the lower 48 states, the species has dramatically increased in numbers and expanded its range. This improvement is a direct result of the banning of DDT and other persistent organochlorines, habitat protection, and other recovery efforts. (U.S. Fish and Wildlife Service 1999.) In addition to a constant upward trend in population, productivity data for the past 10 years show that the target for productivity identified in the recovery plan has been met and remains relatively constant.

Most Bald Eagle population goals set in the recovery plan have been met or exceeded (U.S. Fish and Wildlife Service 1999). In 1994, populations were estimated at approximately 4,450 occupied breeding areas with 1.16 young produced per occupied area. This estimate reflected a 462% increase over 1974 estimates. In 1998, population estimates showed 5,748 breeding areas with all but two states supporting nesting pairs. Sprunt et al. (1973) estimated that an eagle population requires a rate of 0.7 young per pair per year to be sustainable. In the Pacific Region, the rate has averaged 1 young per pair; accordingly, the population is expected to grow (U.S. Fish and Wildlife Service 1999).

Although the Bald Eagle recovery is impressive, not all goals have been reached. In the Pacific Region, 28 of 37 (76%) management zones have met population goals (U.S. Fish and Wildlife Service 1999). Eleven of the 28 zones have more than doubled their goals, but the Pacific Region recovery plan states that the goal requires 80% of management zones to meet population goals. This goal may not be reached because not all management zones have preferred habitat. Success rates for breeding areas have exceeded 65% for several years.

California

The breeding population in California is continuing to increase in numbers and range. The number of breeding pairs occupying territories was 124 in 1996, 142 in 1997, and 146 in 1998. Productivity has remained high, with the number of "young produced per occupied territory of known success" averaging 1.1 in 1996 and 1997. Productivity declined to 0.97 in 1998 but appears to have rebounded to 1.1 young per occupied territory of known success in 1999. (California Department of Fish and Game 2000.)

During 1996, 1997, and 1998, 32 new Bald Eagle breeding territories were reported in California, resulting in a total of 180 territories known to have been occupied at sometime in the 1990s. The breeding range has expanded from portions of eight of California's 58 counties during 1981 to 27 counties currently.

Placer County Phase I Planning Area

Although Bald Eagles regularly occur within the Phase 1 planning area during the winter, no systematic monitoring of this wintering population has been conducted. The CNDDB contains no records of Bald Eagles breeding in Placer County.

Natural History

Habitat Requirements

Historically, Bald Eagles established breeding sites in a variety of habitats in California, including offshore islands; coastal cliffs and pinnacles; and along coastal rivers, interior valley streams and wetlands, and mountain lakes and rivers (Detrich 1985). Nest trees include a variety of hardwoods as well as conifers. Most eagle nesting territories are now found in montane habitat in ponderosa pine and mixed conifer forests (Lehman 1979; Detrich 1985; Jurek 1990).

Bald Eagle nest sites are always associated with bodies of water, usually lakes and rivers that support abundant fish, waterfowl, or other waterbird prey. In California, approximately 70% of the breeding eagle population is associated with water bodies larger than 200 hectares (494 acres) (Detrich 1985). Nest trees are usually found within 1,584 meters (5,197 feet) of water and are typically in mature and old-growth conifer stands (Buehler 2000). Nest trees usually have an unobstructed view of a water body and are typically the dominant or co-dominant trees in their surrounding stands (Lehman 1979). Snags and dead-topped live trees are important for perch and roost sites. Lehman et al. (1980) and Anthony et al. (1982) reported that the mean diameter of nest trees in California and Oregon was 104–117 centimeters (41–46 inches) at breast height.

Bald Eagles winter along rivers, lakes, or reservoirs that support abundant fish or waterbird prey and that have large trees or snags for perch or roost sites. Bald Eagles typically forage in waters less than 500 meters (1,641 feet) from perching habitat. Bald Eagles often roost communally during the winter, typically in mature trees or snags that are isolated from human disturbance. Communal night roosting sites are often different from diurnal perch sites. Night roost sites often possess different habitat components than daytime use areas, including day perch sites. While day perches are generally snags or dead-topped trees, night roost groves generally have live trees and a more closed canopy. Night roosts are often in sites that are sheltered from the weather by landforms and in areas of coniferous stands that provide insulation from the weather. (Buehler 2000.)

Reproduction

Bald Eagles are monogamous and thought to mate for life unless one member of the pair dies, although this characteristic has not been thoroughly documented. Courtship displays, which can begin as early as September, include the "cartwheel display," in which eagles lock talons and fall toward the ground, letting go at the last moment to avoid colliding with the ground; and the "roller coaster flight," in which eagles fold their wings and dive straight at the ground, swooping up at the last moment. Courtship and nest-building begin up to 3 months prior to egg laying. Clutch size is typically two, although one- and three-egg clutches are common. Incubation lasts for approximately 35 days. The young fledge at about 11–12 weeks, but parental care may extend for another 4–11 weeks. Bald Eagles reach sexual maturity in 4–5 years. (Buehler 2000.)

Dispersal Patterns

Upon leaving the nesting site, most juveniles migrate a few hundred miles to wintering areas (U.S. Fish and Wildlife Service 1999). However, there is little information on natal dispersal in Bald Eagles because of the length of time (4–5 years) between fledging and sexual maturity. Most juveniles that were color marked in the greater Yellowstone ecosystem were subsequently found breeding within that system. However, two males nested up to 328 kilometers (204 miles) from their natal sites. Anecdotal information suggests that fidelity to breeding sites in adults is high (Buehler 2000).

Longevity

Bald Eagles are relatively long-lived. The age of the oldest wild Bald Eagle recorded was 28 years, and the oldest captive Bald Eagle reached 36 years. Studies of juvenile survival across the species' range are generally consistent with a California estimate of 77%. Most estimates of adult survival are in the vicinity of 80%. (Buehler 2000.)

Sources of Mortality

Eggs and nestlings are vulnerable to predation from a variety of birds and mammals, including Magpie (*Pica pica*), American Crow and Common Raven (*Corvus* spp.), raccoon (*Procyon lotor*), and black bear (*Ursus americanus*). Few other nonhuman species have either the inclination or the capability to predate on immature or adult Bald Eagles unless they are compromised by starvation, disease, or other debilitating factors (Buehler 2000).

Behavior

Bald Eagles are territorial during the breeding season. Distances to the nearest neighbor and home range sizes are highly variable because of large variations in the dispersion and availability of prey. Estimated densities of Bald Eagles ranged from 0.08 nest per kilometer (0.13 nest per mile) of shoreline in British Colombia to 0.56 nest per kilometer (1.11 nests per mile) in Alaska. In Oregon, the average inter-nest distance among 8 pairs was 3.2 kilometers (2 miles). (Johnsgard 1990.)

Bald Eagles are generalized and opportunistic scavengers and predators (Jurek 1988). The most common prey items on the west coast are fish, waterfowl, jackrabbits; various types of carrion, such as fish, mammals, and waterbirds, are also significant components of the diet (Zeiner et al. 1990; Buehler 2000). Bald Eagles feed gregariously on abundant prey, such as spawning fish, as well as individually (Zeiner et al. 1990). Diurnal perches used during foraging usually have a good view of the surrounding area and are often the highest perch sites available (Buehler 2000). In general, foraging habitat consists of large bodies of water or free-flowing rivers with abundant fish and adjacent snags and other perches (Zeiner et al. 1990).

Movement and Migratory Patterns

Migration patterns in Bald Eagles are complex, with variations related to age, location of breeding site, climate, and food availability. Many Bald Eagles from nesting territories in the northwestern United States migrate south to winter in California (Buehler 2000).

Ecological Relationships

Bald Eagles defend territories against conspecifics during the breeding season, and often behave aggressively towards one another during any time of year in disputes over food resources. Bald Eagles steal food from Ospreys (*Pandion haliaetus*); they also harass and are harassed by Golden Eagles (*Aquila chrysaetos*), other raptors, and corvids (Corvidae) (Buehler 2000).

Population Threats

Early declines of Bald Eagle populations resulted from persecution, shooting, egg collection, and habitat loss and disturbance. After 1945, population declines were exacerbated by the widespread use of DDT and other pesticides that led to eggshell thinning and reproductive failure. By 1960, the southern California breeding population was extirpated, and by 1970, the species no longer bred in central California (Detrich 1985). Certain areas within the Bald Eagle's range continue to have problems with contamination, including the Great Lakes, Maine, the Columbia River, and southern California.

Power line construction and human disturbances can threaten eagle populations in some areas. Because of their large wingspan, Bald Eagles are particularly susceptible to electrocution on power lines. Bald Eagles are also sensitive to human disturbance during the breeding season; human disturbance can cause abandonment or relocation of nest sites (Buehler 2000). In Washington, the vast majority of wintering Bald Eagles tolerated human activities at a distance of 300 meters (985 feet), and only half tolerated activity at a distance of 150 meters (492 feet) (Stalmaster and Newman 1978; Buehler 2000). The most disturbing human activity appears to be boating, although hiking and car traffic are also significant disturbances (Buehler 2000).

Loss of perching habitat and communal roosting sites can also be a factor in some populations (U.S. Forest Service 2000).

References

Anthony, R. G., R. L. Knight, G. T. Allen, B. R. McClelland, and J. L. Hodges. 1982. Habitat use by nesting and roosting bald eagles in the Pacific Northwest. Transactions of the North American Wildlife and Natural Resource Conference 47:332–342.

Buehler, D. A. 2000. Bald eagle (*Haliaeetus leucocephalus*). In A. Poole and F. Gill (eds.), *The birds of North America*. No. 506. Philadelphia, PA: the Academy of Natural Sciences and Washington, DC: the American Ornithologists' Union.

California Department of Fish and Game. 2000. The status of rare, threatened, and endangered animals and plants of california, bald eagle. Available at: http://www.dfg.ca.gov/hcpb/species/jsp/ssc_result.jsp?specy=birds&query=Haliaeetus%20 leucocephalus

Detrich, P. J. 1985. The status and distribution of bald eagle in California. M.S. thesis, California State University, Chico.

Grinnell, J., and A. H. Miller. 1944. *The distribution of the birds of California*. Berkeley, CA: Cooper Ornithological Club, Pacific Coast Avifauna. Number 27. Reprinted 1986. Lee Vining, CA: Artemisia Press.

Johnsgard, P. A. 1990. *Hawks, eagles, and falcons of North America: biology and natural history*. Washington, DC: Smithsonian Institution Press.

Jurek, R. M. 1988. Five-year status report. Bald eagle. Unpublished report. Sacramento, CA: California Department of Fish and Game, Wildlife Management Division.

Jurek, R. M. 1990. California Bald Eagle breeding population survey and trend, 1970–90. Sacramento, CA: California Department of Fish and Game, Nongame Bird and Mammal Section.

Lehman, R. N. 1979. A survey of selected habitat features of 95 bald eagle nest sites in California. (Administrative Report 79-1.) Sacramento, CA: California Department of Fish and Game, Wildlife Management Branch.

Lehman, R. N., D. E. Craigie, P. L. Colins, and R. S. Griffen. 1980. An analysis of habitat requirements and site selection criteria for nesting bald eagles in California. Prepared for U.S. Forest Service, Region 5, San Francisco, CA. Arcata, CA: Wilderness Research Institute.

Sprunt, A., W. B. Robertson, Jr., S. Postupalsky, R. J. Hensel, C. E. Knoder, and F. J. Ligas. 1973. Comparative productivity of six bald eagle populations. *Transactions of 38th North American Wildlife and Natural Resources Conference*, Washington, DC.

Stalmaster, M. V., and J. R. Newman. 1978. Behavioral responses of wintering bald eagles to human activity. *Journal of Wildlife Management* 43:221–224.

U.S. Forest Service. 2000. Southern California conservation strategy province consultation package. December 15. Unpublished document submitted to the U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1986. *Recovery plan for the Pacific bald eagle*. Portland, OR.

_____. 1999. Endangered and threatened wildlife and plants; proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. 64 FR 128 36454–36464

Zeiner, D. C., W. F. Laudenslayer, K. E. Mayer, and M. White (eds.). 1990. *California's wildlife*: Volume 2: *Birds*. Sacramento, CA: California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game.